

Title (en)

Reconfigurable optical interconnect using dynamic hologram.

Title (de)

Rekonfigurierbare optische Verbindung unter Verwendung eines dynamischen Hologramms.

Title (fr)

Interconnexion reconfigurable optique utilisant un hologramme dynamique.

Publication

EP 0339657 A1 19891102 (EN)

Application

EP 89107698 A 19890427

Priority

US 18780788 A 19880429

Abstract (en)

A beam (110) of coherent light is coupled into an array of light detectors (146, 148, 150, 152) using a beam splitter (120) for dividing the beam into a probe beam (102) and a pump beam (122) and a spatial light modulator (144) for varying the intensity of the probe beam (102) in a first direction perpendicular to the direction of propagation of the beam. A photorefractive element (134) is positioned to receive the modulated probe beam and the pump beam, the beams being oriented with respect to the photorefractive element (134) and with respect to each other such that photorefractive two-wave mixing within the photorefractive element (134) nonreciprocally transfers energy from the pump beam (122) to the modulated probe beam, which is then detected by the detector array (146, 148, 150, 152). A first lens system (138, 140) may be positioned in the path of each probe beam (102) between the beam splitter (120) and the spatial light modulator (144) for expanding each probe beam (102) in the first direction, while a second lens system (130, 132) may be positioned in the path of each pump (122) beam between the beam splitter (120) and the photorefractive element (134) for expanding each pump beam (122) in the first direction.

IPC 1-7

G02F 1/35

IPC 8 full level

G02F 1/01 (2006.01); **G02F 1/05** (2006.01); **G02F 1/29** (2006.01); **G02F 1/31** (2006.01); **G02F 1/35** (2006.01); **G03H 1/00** (2006.01)

CPC (source: EP US)

G02F 1/0541 (2013.01 - EP US); **G02F 1/293** (2013.01 - EP US); **G03H 1/0005** (2013.01 - EP US); **G03H 2225/11** (2013.01 - EP US); **G03H 2260/54** (2013.01 - EP US)

Citation (search report)

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US5179605A; CN100430813C; US10411812B1

Designated contracting state (EPC)

DE FR GB

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EP 0339657 A1 19891102; **EP 0339657 B1 19930908**; DE 68908945 D1 19931014; DE 68908945 T2 19940421; JP H0215244 A 19900118; US 4877297 A 19891031

DOCDB simple family (application)

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